

## Angelos Barmpoutis, Ph.D.

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DW Research and Technology Coordinator

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### Short bio

Angelos Barmpoutis is an Assistant Professor of Digital Arts and Sciences, and the coordinator of research and technology in the Digital Worlds Institute at the University of Florida. Prof. Barmpoutis' current research interests lie in the areas of machine vision and applications, virtual reality in medicine, human motion capture and analysis, biomedical image processing and visualization, and facial expression analysis. He has coauthored numerous journal publications, conference articles and book chapters in the aforementioned topics, including the most cited article in the volume 'Information Processing in Medical Imaging', in 2007.

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### Fields of Interest

**Primary:** Machine Vision and Applications, Virtual Reality, Biomedical Image Processing, Data Visualization

**Secondary:** Algorithms and Theory, Signal and Systems, Differential Geometry, Artificial Life/Intelligence, Parallel Computation

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### Education

PhD in Computer Engineering, *University of Florida*, May 2009.

MSc in Electronics and Electrical Engineering, *University of Glasgow*, Dec 2004.

BSc *summa cum laude* (απαγγελία όρκου) in Computer Science, *Aristotle University of Thessaloniki*, Jun 2003.

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### Professional Experience

2010- present: *Assistant Professor*, University of Florida, Digital Worlds Institute

2009-2010: *Post-doctoral Research Associate*, University of Florida, Computer and Information Science and Engineering.

2005-2009: *Research Assistant*, University of Florida, Computer vision and graphics lab

2002-2003, *Research Assistant*, Aristotle University, Artificial Intelligence Lab (AIIA)

2002, *Research Assistant* - Beta CAE Systems S.A. Headquarters, Internship

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### Memberships

IEEE, Institute of Electrical and Electronic Engineers ([www.ieee.org](http://www.ieee.org))

MICCAI, Medical Imaging Computing and Computer Assisted Intervention ([www.miccai.org](http://www.miccai.org))

ISMRM, International Society for Magnetic Resonance in Medicine ([www.ismrm.org](http://www.ismrm.org))

**Selected Awards and Honors**

I am the first author of the most cited article in Information Processing in Medic. Imaging, 2007. (Source: Scopus)

Outstanding Academic Achievement Award, Engineering College, *University of Florida*, 2008

Bursary, International Epigraphic Conference, *University of Oxford*, 2007

Alumni Fellowship, *University of Florida*, 2004-2008

Graduate studies grant from Gerondelis Foundation Inc., 2008

Educational Stipend, *ISMRM*, 2007

International Student Outstanding Achievement Award, *University of Florida*, 2005, 2006

Bodosakis Foundation scholarship, 2003, 2004

Graduation Distinction *summa cum laude* (Highest GPA), *Aristotle University*, 2003

Ranked #1 in Panhellenic University Exams, Scholarship, *Rotary International*, 1999

**Selected Publications**

**Book chapters** (in inverse chronological order)

- [1] **A. Barmpoutis** and B. C. Vemuri. "Information Theoretic methods for Diffusion-Weighted MRI analysis." In *Emerging Trends in Visual Computing*, F. Nielsen (ed.), Springer-Verlag, Heidelberg, Germany, 2009, pp. 327-346.
- [2] **A. Barmpoutis** and G. X. Ritter. "Orthonormal Basis Lattice Neural Networks". In *Computational Intelligence based on Lattice Theory*, V. Kaburlasos and G. X. Ritter (ed.) Springer-Verlag, Heidelberg, Germany, 2007, pp. 43-56.

**Journals** (in inverse chronological order)

- [3] Y. Weldelessie, **A. Barmpoutis** and S. Atkins. "Symmetric positive-definite Cartesian tensor orientation distribution functions (CT-ODF)", *Medical Image Analysis*, 2011 (submitted) (Impact factor=4.248)
- [4] **A. Barmpoutis** and Baba C. Vemuri. "Imposing positive semi-definite constraint on symmetric tensors of even order". *SIAM Journal on Imaging Sciences*, 2011 (submitted) (Impact factor=1.328)
- [5] R. Kumar, **A. Barmpoutis**, A. Banerjee, B. C. Vemuri. "Non-Lambertian Reflectance Modeling and Shape Recovery for Faces using Anti-Symmetric Tensor Splines." *IEEE Transactions on Pattern Analysis and Machine Intelligence* 33(3), 2011, pp. 533-567. (Impact factor=3.579)
- [6] **A. Barmpoutis**, E. Bozia, and R. S. Wagman. "A novel framework for 3D reconstruction and analysis of ancient inscriptions." *Journal of Machine Vision and Applications*, 21(6), 2010, pp. 989-998. (Impact factor=1.479)

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- [7] **A. Barmpoutis**, M. S. Hwang, D. Howland, J. R. Forder, B. C. Vemuri. "Regular Positive-Definite 4<sup>th</sup>-order Tensor Field Estimation from DW-MRI". *NeuroImage*, 45 (1. Sup 1) 2009, pp. 153-162. (Impact factor=5.457)
- [8] **A. Barmpoutis**, B. C. Vemuri, T. M. Shepherd, and J. R. Forder. "Tensor splines for interpolation and approximation of DT-MRI with applications to segmentation of isolated rat hippocampi." *IEEE Transactions on Medical Imaging* 26(11), 2007, pp. 1537-1546. (Impact factor=3.275)
- [9] J. Barker and **A. Barmpoutis**. "Smart Dust: Monte Carlo Simulation of Self-Organized Transport." *Journal of Computational Electronics* 3(3-4), 2004, pp. 317-321.

**Selected referred conference papers***(in inverse chronological order)*

- [10] **A. Barmpoutis** and J. Zhuo. "Diffusion Kurtosis Imaging: Robust estimation from DW-MRI using homogeneous polynomials", ISBI, 2011, pp. 262-265.
- [11] Y. Weldeselassie, **A. Barmpoutis** and S. Atkins. "Symmetric positive-definite Cartesian tensor orientation distribution functions (CT-ODF)", MICCAI, 2010, pp. 582-589. (Acceptance rate=32%)
- [12] **A. Barmpoutis** and B. C. Vemuri. "A unified framework for estimating Diffusion Tensors of any order with sym. positive-definite constraints", ISBI, 2010, pp. 1385-1388.
- [13] **A. Barmpoutis** and B. C. Vemuri. "Groupwise registration and atlas construction of 4th-order tensor fields using the R+ Riemannian metric." MICCAI, 2009, pp. 640-647. (Acceptance rate=32%)
- [14] **A. Barmpoutis**, B. Jian and B. C. Vemuri. "Adaptive kernels for multi-fiber reconstruction." *IPMI*, 2009, pp. 338-349. (Acceptance rate=39%)
- [15] R. Kumar, **A. Barmpoutis**, B. C. Vemuri, P. Carney and T. Mareci. "A physical basis for multi-fiber reconstruction from DW-MRI data.", *ISBI*, 2009.
- [16] **A. Barmpoutis**, B. C. Vemuri, D. Howland and J. R. Forder. "Extracting Tractosemas from a displacement probability field for tractography." *MICCAI*, 2008, pp. 9-16. (Acceptance rate=5%)
- [17] **A. Barmpoutis**, R. Kumar, B. C. Vemuri and A. Banerjee. "Beyond the Lambertian Assumption: A generative model for Apparent BRDF fields of Faces using Anti-Symmetric Tensor Splines." *CVPR*, 2008, pp. 1-6. (Acceptance rate=31%)
- [18] R. Kumar, **A. Barmpoutis** and B. C. Vemuri. "Multi-fiber reconstruction from DW-MRI using a continuous mixture of von Mises-Fisher distributions." *MMBIA*, 2008, pp. 1-8.
- [19] **A. Barmpoutis**, B. C. Vemuri and J. R. Forder. "Fast displacement probability profile approximation from HARDI using 4th-order tensors." *ISBI*, 2008, pp. 911-914. (Acceptance rate=52%)
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- [20] **A. Barmpoutis**, B. C. Vemuri and J. R. Forder. "Registration of HARD MRI Images using 4th Order Tensors." *MICCAI*, 2007, pp. 908-915. (Acceptance rate=37%)
  - [21] **A. Barmpoutis**, B. Jian, B. C. Vemuri and T. M. Shepherd. "Symmetric Positive 4th Order Tensors & their Estimation from DW-MRI." *IPMI*, 2007, pp. 308-319. (Acceptance rate=31%)
  - [22] **A. Barmpoutis**, and B. C. Vemuri. "Exponential Tensors: A framework for efficient higher-order DT-MRI computations." *ISBI*, 2007, pp. 792-795. (Acceptance rate=65%)
  - [23] **A. Barmpoutis**, B. C. Vemuri, and J. Forder. "Robust Tensor Splines for Approximation of Diffusion Tensor MRI Data." *MMBIA-CVPR*, 2006, pp. 86-72.
  - [24] **A. Barmpoutis**, N. Nikolaidis, and I. Pittas. "Face 3D Pose Estimation Using a Generic 3D Face Model and Facial Feature Extraction." *PCI*, 2003, pp. 519-526.

**Selected conference abstracts**

(in inverse chronological order)

- [25] S. Chandra, **A. Barmpoutis**, N. Simpson, and J.R. Forder. "High Angular Resolution Diffusion Microscopy (HARDM) detects Retinal Disruption in mice with Diabetic Retinopathy", *ISMRM*, 2011
- [26] S. Chandra, **A. Barmpoutis**, and J. R. Forder. "Diffusion Tensor Imaging detects and characterizes Proliferative Diabetic Retinopathy in the Murine Retina". *ENC*, 2008
- [27] **A. Barmpoutis**, S Chandra, J. R. Forder, and B. C. Vemuri, "A novel DTI method for analyzing the diffusion of water in retina", *ISMRM*, 2007
- [28] M. Hwang, M. Clark, **A. Barmpoutis**, and J. R. Forder. "Contribution of myocardial vascular compartment of water diffusion", *ISMRM*, 2007
- [29] **A. Barmpoutis**, B. C. Vemuri, T. M. Shepherd, and J. R. Forder. "Robust Interpolation of DT-MRI data using Tensor Splines", *ISMRM*, 2006

For a full list of refereed conference papers and abstracts please visit my web-site.

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**Given Lectures**

- "Tensor Field Analysis for Image Processing Applications", *Center of Imaging Science, Johns Hopkins University*, March 8, 2011
- "Methods for Efficient and Robust High-Order Diffusion Tensor Imaging", *Department of Radiology, University of North Carolina*, Chapel Hill, May 17th, 2010
- "Multi-linear Forms and their Application to Image Analysis", *General Electric Research Campus*, Albany New York, March 18, 2010
- "Searching inside the human brain: The next-generation medical imaging techniques", *University of South Carolina*, Beaufort, February 23, 2010

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"Robust High-Order Diffusion Tensor Imaging Techniques", *Stanford Research Institute International*, February 12, 2010

"Multi-linear Forms and their Applications to Image Analysis", *Computer Science department, Rutgers University*, May 7, 2009

"Estimating asymmetric spherical function fields from displacement probabilities", *Institute for Pure and Applied Mathematics, University of California Los Angeles*, July 17, 2008

"Symmetric Positive 4th Order Tensors & their Estimation from Diffusion Weighted MRI", *Computer and Information Science and Engineering dept., University of Florida*, Oct. 11, 2007

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**Grants  
awarded**

June 2011 – Dec. 2012, *Digital Epigraphy Toolbox*, National Endowment for the Humanities, Office of Digital Humanities, Award: HD-51214-11, Role: Principal Investigator, \$50,000.

March 2011 – March 2012, *Game technology to enhance sensory input and promote walking recovery*, UF Clinical and Translational Science Institute, Role: co-Investigator, \$7,500.

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**Other  
Service**

I have served as a reviewer of book proposals for the following publisher:

- Elsevier

the following international journals:

- NeuroImage,
- Molecular Imaging,
- SIIMS (SIAM Journal on Imaging Sciences)
- Proceedings of the National Academy of Sciences of the USA
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Medical Imaging
- CVIU (Computer Vision and Image Understanding)
- JMIV (Journal of Mathematical Imaging and Vision)
- JMLC (Journal of Machine Learning and Cybernetics)
- Pattern Recognition,
- IJCARS (International Journal of Computer Assisted Radiology and Surgery)
- JEMWA (Journal of Electromagnetic Waves and Applications)

and the following conferences:

- ICCV (International Conference in Computer Vision),
- MICCAI (Medical Image Computing and Computer Assisted Intervention),
- IPMI (Information Processing in Medical Imaging),
- ECCV (European Conference in Computer Vision),
- CVPR (Computer Vision and Pattern Recognition),
- PMMIA (Probabilistic Models for Medical Image Analysis)

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Program Committee member of the International Conference in Computer Vision 2011.

External Reviewer of the E.U. Romanian National Council of Scientific Research, 2011.

I have served as the elected president of the student government, Computer Science department, *Aristotle University*, 2001-2002

Staff member of the *IEEE International Conference on Image Processing - ICIP* 2001

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## Teaching

Fall 2011, Protocols for Multimedia Interfaces, *University of Florida*.

Fall 2011, DAS Design and Production Studio / Introduction to DAS, *University of Florida*.

Spring 2011, Interaction Design, *University of Florida*.

Fall 2010, Interdisciplinary Research Seminar, *University of Florida*.

Fall 2008, Advanced Programming Fundamentals, *University of Florida*.

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## Published Software

I have published the following software packages that have been extensively used by researchers at *MIT*, *INRIA*, *University of North Carolina* at Chapel Hill, *University of Strasbourg*, *Stanford Research Institute*, *University of Wisconsin*, *University of Minnesota*, and other academic and research institutes.

- fanDTasia - Diffusion Tensor Imaging tool (Released on: March, 2, 2010)
- Software for positive-definite 4th-order tensor estimation (Released on: Sep. 9, 2009)
- DW-MRI signal simulator (Released on: March 5, 2009)

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## Patent Applications

“Face relighting from a single image.” U.S. Prov. Patent Application S/N: 61/055,002

“Positive semi-definite high-order tensor estimation with applications to DW-MRI.” U.S. Prov. Patent Application UFRFI S/N:12775-7, International patent application: 21018-1-0052

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## Other Skills and Certificates

Health Insurance Portability and Accountability Act (HIPAA) Certificate, 2009 for handling human health data.

Summer School: 'Mathematics in Brain Imaging', IPAM department, *UCLA*, 2008

Summer School: 'The Data Avalanche: Reducing Information Overload', *FOURTH*, 2002

Expert level: C/C++, Java, OpenGL, Matlab, Mathematica, PhP, SQL, Flash

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**Appendix**

My work has been cited more than 100 times in major journals and conference proceedings.  
Citation rate: ~25 new citations/year, Archival citations: 30%, Proceedings: 70%

**Selected  
Recent  
Citations**

**Selected recent third party citations:**

D. Raffelt et al. "Symmetric diffeomorphic registration of fibre orientation distributions", *NeuroImage*, 56(3), 2011, pp. 1171-1180.

A. Goh et al. "A nonparametric Riemannian framework for processing high angular resolution diffusion images and its applications to ODF-based morphometry", *NeuroImage*, 56(3), 2011, pp. 1181-1201.

J. Cohen-Adad et al. "Wallerian degeneration after spinal lesions in cats detected with diffusion tensor imaging", *NeuroImage*, 57(3), 2011, pp. 1068-1076.

J. Zhuo et al. "Diffusion kurtosis as an in vivo imaging marker for reactive astrogliosis in traumatic brain injury", *Neuroimage*, 2011.

D. Chyzyk et al. "Hybrid dendritic computing with kernel-LICA applied to Alzheimer's disease detection in MRI", *Neurocomputing*, 2011.

E. Hodneland et al. "Automated approaches for analysis of multimodal MRI acquisitions in a study of cognitive aging", *Computer Methods and Programs in Biomedicine*, 2011.

B. M. Ellingson et al. "High Order Diffusion Tensor Imaging in Human Glioblastoma", *Academic Radiology*, 18(8), 2011, pp. 947-954.

J. Cohen-Adad, "Demyelination and degeneration in the injured human spinal cord detected with diffusion and magnetization transfer MRI", *NeuroImage*, 55(3), 2011, pp.1024-1033.

Pew-Thian Yap et al. "SPHERE: SPHERical Harmonic Elastic REGistration of HARDI data", *NeuroImage*, 55(2), 2011, pp. 545-556.

Haz-Edine Assemlal et al. "Recent advances in diffusion MRI modeling: Angular and radial reconstruction", *Medical Image Analysis*, 15(4), 2011, pp. 369-396.

H. Jia et al. "Intermediate templates guided groupwise registration of diffusion tensor images" *NeuroImage*, 54 (2), 2011, pp. 928-939.

R. Duits and E. Franken, "Left-Invariant Diffusions on the Space of Positions and Orientations and their Application to Crossing-Preserving Smoothing of HARDI images", *International Journal of Computer Vision*, 92(3), 2011, pp. 231-264.

L. Astola et al. "Finsler Streamline Tracking with Single Tensor Orientation Distribution Function for High Angular Resolution Diffusion Imaging", *Journal of Mathematical Imaging and Vision*, 2011.

H. Knutsson et al. "Representing Local Structure using Tensors II", In *Proceedings of Image Analysis (SCIA)*, 2011, pp. 545-556.

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- M. Reisert and V. G. Kiselev. "Fiber Continuity: An anisotropic prior for ODF estimation", *IEEE Transactions on Medical Imaging*, 30 (6), 2011, pp. 1274-1283.
- X. Geng et al. "Diffeomorphic Image Registration of Diffusion MRI Using Spherical Harmonics", *IEEE Transactions on Medical Imaging*, 30 (3), 2011, pp. 747-758.
- L. Astola and L. Florack. "Finsler Geometry on Higher Order Tensor Field and Applications to High Angular Resolution Diffusion Imaging", *International Journal of Computer Vision*, 92 (3), 2011, pp. 325-336.
- A. Grigis et al. "A new high order tensor decomposition: Application to reorientation", In *Proceedings of ISBI*, 2011, pp. 258-261.
- J. Du et al. "Large deformation diffeomorphic metric mapping of orientations distributions functions", In *Proceedings of IPMI*, 2011, pp. 448-462.
- F. Jiao et al. "Detection of Crossing White Matter Fibers with High-Order Tensors and Rank-k Decompositions", In *Proceedings of IPMI*, 2011, pp. 538-549.
- D. Chyzyk and M. Grana. "Optimal Hyperbox shrinking in dendritic computing applied to Alzheimer's disease detection in MRI", *Advances in Intelligent and Soft Computing*, 87, 2011, pp. 543-550.
- M. Descoteaux et al. "Multiple q-shell diffusion propagator imaging" *Medical Image Analysis*, 15(4), 2011, pp. 603-621.
- E. M. Akkerman. "The direct tensor solution and higher-order acquisition schemes for generalized diffusion tensor imaging", *Journal of Magnetic Resonance*, 206(1), 2010, pp. 9-19.
- Y. Zhao and N. Liu. "Tensor bidirectional reflectance distribution function model graph based multi-spectral face recognition", In *Proceedings of Image and Signal Processing*, 2010, pp. 1956-1960.
- R. Kumar et al. "Morphable Reflectance Fields for enhancing face recognition", In *Proceedings of IEEE Computer Vision and Pattern Recognition*, 2010, pp. 2606-2613.
- F. Renard et al. "Reorientation strategies for High Order Tensors", In *Proceedings of IEEE ISBI*, 2010, pp. 1185-1188.
- J. Veraart et al. "Non-rigid coregistration of diffusion kurtosis data", In *Proceedings of IEEE ISBI*, 2010, pp. 392-395.
- A. Ghosh and R. Deriche. "Fast and closed-form ensemble-average-propagator approximation from the 4th-order diffusion tensor", In *Proceedings of IEEE ISBI*, 2010, pp. 1105-1108.
- L. Bloy and R. Verma. "Demons registration of high angular resolution diffusion images", In *Proceedings of IEEE ISBI*, 2010, pp. 1013-1016.
- J. G. Malcom et al. "Filtered Multitensor Tractography", *IEEE Transactions on Medical Imaging*, 29 (9), 2010, pp. 1664-1675.
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- Pew-Thian Yap et al. "Hierarchical Spherical Harmonics Based Deformable HARDI Registration", In *Proceedings of Medical Imaging and Augmented Reality*, 2010, pp. 228-236
- X. Geng et al. "Group-Wise Diffeomorphic Diffusion Tensor Image Registration", In *Proceedings of MICCAI*, 2010, pp. 598-606.
- Y. Rathi et al. "Biomarkers for Identifying First-Episode Schizophrenia Patients Using Diffusion Weighted Imaging", In *Proceedings of MICCAI*, 2010, pp. 657-665.
- G. X. Ritter and G. Urcid, "Lattice Neural Networks with Spike Trains", In *Proceedings of Hybrid Artificial Intelligence Systems*, 2010, pp. 367-374.
- L. Florack et al. A New Tensorial Framework for Single-Shell High Angular Resolution Diffusion Imaging, *Journal of Mathematical Imaging and Vision*, 38 (3), 2010, pp. 171-181.
- J. G. Malcom et al. "A filtered approach to neural tractography using the Watson directional function", *Medical Image Analysis* 14 (1), 2010, pp. 58-69.
- O. Pasternak, N. Sochen and P. J. Basser. "The effect of metric selection on the analysis of diffusion tensor MRI data", *NeuroImage* 49 (3), 2010, pp. 2190-2204.
- P. Savadjiev et al. "Local White Matter Geometry from Diffusion Tensor Gradients", *NeuroImage* 49 (4), 2010, pp. 3175-3186.
- S. He et al. "Approximation algorithms for homogeneous polynomial optimization with quadratic constraints", *Mathematical Programming*, 125 (2), 2010, pp. 353-383.
- A. Goh et al. "Estimating Orientation Distribution Functions with Probability Density Constraints and Spatial Regularity", In *Proceedings of MICCAI*, 2009, pp. 877-885.
- L. Astola and L. Florack. "Finsler Geometry on Higher Order Tensor Fields and Applications to High Angular Resolution Diffusion Imaging ", In *Scale Space and Variational Methods in Computer Vision*, 2009, pp. 224-234.
- A. Ghosh and R. Deriche. "From Second to Higher Order Tensors in Diffusion-MRI", In *Tensors in Image Processing and Computer Vision*, 2009, pp. 315-334.
- A. Brun and H. Knutsson. "Tensor Glyph Warping: Visualizing Metric Tensor Fields using Riemannian Exponential Maps", In *Visualization and Processing of Tensor Fields*, D. Laidlaw and J. Weickert ed., Springer Berlin Heidelberg, 2009, pp. 139-160.
- N. Ajmal and A. Jain. "Some constructions of the join of fuzzy subgroups and certain lattices of fuzzy subgroups with sub property", *Information Sciences* 179 (23), pp. 4070-4082.
- M. Moakher. "The Algebra of Fourth-Order Tensors with Applications to Diffusion MRI", In *Visualization and Processing of Tensor Fields*, D. Laidlaw and J. Weickert ed., Springer Berlin Heidelberg, 2009, pp. 57-80.
- P. T. Fletcher et al. "The Geometric Median on Riemannian Manifolds with Application to Robust Atlas Estimation", *NeuroImage* 45 (1 sup. 1), 2009, pp. 143-152.
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- Liqun Qi et al. "Principal Invariants and Inherent Parameters of Diffusion Kurtosis Tensors", *Journal of Mathematical Analysis and Applications* 349, 2009, pp. 165-180.
- Yunho Kim et al. "HARDI Denoising: Variational Regularization of the Spherical Apparent Diffusion Coefficient sADC", In *Proceedings of IPMI*, 2009, pp. 515-527.
- Xiujuan Geng et al. "Diffusion MRI Registration Using Orientation Distribution Functions", In *Proceedings of IPMI*, 2009, pp.623-637.
- I. Yassine et al. "4th order diffusion tensor interpolation with divergence and curl constrained Bezier Patches", In *Proceedings of ISBI*, 2009, pp. 634-637
- L. Zhan et al. "Investigating the uncertainty in multi-fiber estimation in High Angular Resolution Diffusion Imaging", In *Proceedings of Probabilistic Models for Medical Image Analysis (MICCAI)*, 2009
- L. Astola. "Multi-scale Riemman-Finsler Geometry: Applications to Diffusion Tensor Imaging and High Angular Resolution Diffusion Imaging", Eindhoven 2009, ISBN: 978-90-386-2146-3
- D. Raffelt et al. "Non-Linear Spatial Normalization of High Angular Resolution Diffusion Imaging Data using Fiber Orientation Distributions", *DMFC workshop, MICCAI*, 2009
- J. Cohen-Adad et al. "Comparison of DTI and Q-Ball imaging in a cat model of spinal cord injury", In *Proceedings of the annual meeting of the Org. for Human Brain Mapping*, 2009
- M. Descoteaux et al. "Diffusion Propagator Imaging: Using Laplace's Equation", In *Proceedings of IPMI*, 2009, pp. 1-13.
- J. G. Malcom et al. "Neural Tractography Using an Unscented Kamlan Filter", In *Proceedings of IPMI*, 2009, pp. 126-138.
- R. Kumar et al. "Multi-fiber Reconstruction from DW-MRI using a continuous Mixture of Hyperspherical von Mises-Fisher distributions", In *Proceedings of IPMI*, 2009, pp. 139-150.
- Alvina Goh et al. "A Nonparametric Riemannian Framework for Processing High Angular Resolution Diffusion Images (HARDI)", *CVPR*, 2009
- Simai He et al. "Approximation Algorithms for Homogeneous Polynomial Optimization with Quadratic Constraints", *SEEM*, 2009
- R. Duits et al. "Left-invariant diffusions on  $\mathbb{R}_3 \times \mathbb{S}_2$  and their application to crossing-preserving smoothing of HARDI-images", *CASA*, 2009
- A. Gosh et al. "Ternary quartic approach for positive 4th-order diffusion tensors revisited", In *Proceedings of ISBI*, 2009, pp. 618-621.
- M. Moakher, "Fourth-order Cartesian tensors old and new facts, notions applications", *Quatrerly Journal of Mechanics Appl. Math.* 61(2), Oxford, 2008, pp. 181-203.
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- A. D. Leow et al. "The Tensor Distribution Function", *MRM* 61(1), 2008, pp. 205-214.
- M. Descoteaux, "High Angular Resolution Diffusion MRI: from Local Estimation to Segmentation and Tractography", *PhD Thesis, University of Nice-Sophia Antipolis*, Feb 2008.
- Y. Kim et al. "HARDI data denoising using vectorial total variation and logarithmic barrier", *C.A.M. Report* 68, 2008.
- A. Ghosh et al. "4th order diffusion tensor estimation and application", *In Proceedings of ISMRM*, 2008.
- R. Neji et al. "Manifold-driven Grouping of Skeletal Muscle Fibers", RR 6825, INRIA, 2009.
- L. Zhan et al. "How many gradients are sufficient in HARDI?", *Diffusion Tensor Imaging Workshop MICCAI* 2008.
- A. D. Leow et al. "A Study of Information Gain in High Angular Resolution Diffusion Imaging (HARDI)", *MICCAI* 2008.
- Yunho Kim et al. "TV/L1 minimization for HARDI data denoising with reduced constraint", *ISBI*, 2009.
- A. Ghosh et al. "A polynomial based approach to extract the maxima of an antipodally symmetric spherical function and its application to extract directions from the Orientation Distribution Function in Diffusion MRI". *Workshop on Computational Diffusion MRI, MICCAI* 2008.
- I. Yassine et al. "A Subdivision Approach to Tensor Field Interpolation", *Workshop On Computational Diffusion MRI*, 2008, pp. 117-124.
- P. Savadjiev et al. "Streamline flows for white matter fibre pathway segmentation in diffusion MRI", *In Proceedings of MICCAI*, 2008, pp. 135-143.
- A. Ghosh et al. "Riemannian Framework for estimating Symmetric Positive Definite 4th Order Diffusion Tensors", *In Proceedings of MICCAI*, 2008, pp.858-865.
- Deren Han et al. "Extreme Diffusion Values for non-Gaussian Diffusions", *Optimization Methods and Software* 23(5), 2008, pp. 703-716.
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